DOCUMENT RESUME

ED 173 792 CS 204 927

AUTHOR Logan, Robert A.
TITLE Secularization and Popularization.
PUB DATE Aug 78
NOTE 17p.; Paper presented at the Annual Meeting of the Association for Education in Journalism (61st, Seattle, Washington, August 13-16, 1978)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Communication (Thought Transfer); *Information Dissemination; Interprofessional Relationship; *Journalism; News Media; *News Reporting; Objectives; Scientific Attitudes; *Scientists; *Technical Writing

ABSTRACT

Scientists and science writers are often thought to be at odds about the goals and strategies of communicating scientific information to the public. However, a value judgment underlies the "raison d' etre" for scientific communications and links the diffusion of information about science with an ensuing public trust for science. Scientists and science reporters believe, for example, that accurate and comprehensive science reporting increases the public's knowledge about science and also creates a higher public trust for science. Furthermore, an increase in public knowledge and public trust is desirable to many scientists and science writers because it generates more popular support for their field. In turn, this support assures the continued growth of science. It is the nature and viability of this shared value judgment that is the central issue in science communications, rather than the differences between scientists and science writers. Moreover, recent evidence reveals a conceptual weakness in this value judgment, which indicates that current strategies may not be fulfilling their self-stated purposes but rather contributing to a public distrust of science. New strategies in science reporting are needed to accomplish the goals of scientists and science writers. (Author/DF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED173792

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

SECULARIZATION AND POPULARIZATION

By

Dr. Robert A. Logan
Assistant Professor

Journalism Department
California Polytechnic State University
San Luis Obispo, California 93407
(805) 546-2495

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Robert A. Logan

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Presented to the Magazine Division
Association for Education in Journalism Annual
Convention, Seattle, Wash., August, 1978

CS204927

A recent article by Shaw illustrates some wide differences between scientists and science writers about the transmission of scientific information to the lay public.[1] Shaw lists, for example, some complaints from scientists about science reporting. Moreover, Shaw implies that scientists are bitter about alleged attempts by science writers to publicly belittle science by misrepresenting scientific research in newspapers and magazines.

But Shaw fails to point out that most science writers strive to represent science to laymen according to the same standards which are advocated by scientists. In fact, Greenberg and Haaf have found that there is a paradigm between scientists and science reporters which mutually supports similar goals and responsibilities in scientific communications.[2] Hence, Shaw misunderstands that the criticism of science reporting from the scientific community usually does not reflect an outright repudiation of science journalism. Instead, scientists are seeking to reinforce existing inter-professional standards, which are based on a mutual paradigm.

Also, Shaw does not explain that many scientists and science writers nit-pick about inaccuracy because they assume that inaccurate science information results in a public distrust of science.[3]

So, the substructure of the paradigm in science communications contains a value judgment which links the diffusion of information about science with an ensuing public trust for science. Scientists and science reporters believe, for example, that accurate and comprehensive science reporting increases the public's knowledge about science and also creates a higher public trust for science.[4] Furthermore, an increase in public knowledge and public trust is desirable to many scientists and science writers because it generates more popular support for science. This popular support, in turn, assures the continued growth of science, which is the raison d'etre for scientific communications.[5]

Consequently, the mass communication strategies of many scientists and science reporters can be linked to a value judgment, which also fuses concrete communication strategies with social goals. Yet, the accomplishment of these social goals is contingent on the viability of the initial value judgment (that links information diffusion with public trust). Hence, the viability of this value judgment is the key issue in scientific communications. Indeed, its refutation would be a mortal blow to current mass communication strategies because communication strategies would then be potentially unrelated to desirable social goals.

Therefore, it is significant that recent evidence indicates the public's trust for science is unrelated to information diffusion about science.[6] Instead, public trust is linked to a public mediation of values about science. This assessment, in turn, refutes the value judgment which underlies the aforementioned paradigm and casts doubt about whether current mass communication strategies are a viable solution to help engender a public trust and a continued growth for science in society.

Hence, an alternative strategy has been proposed in order to accomplish a public trust for science and to diffuse scientific information. This paper, then, explains this alternative proposal after reviewing the growth of the incumbent paradigm and its weaknesses.

But before exploring the viability of current or alternative strategies in scientific communications, we need to demonstrate the high level of agreement about the raison d'etre for science writing between scientists and reporters. Most scientists, for instance, have thought for about 50 years that science should be "popularized" in order to establish a high public regard for science. The interest in popularizing science began in

1919 after several leading American scientists became concerned that the American public was badly misinformed about science. For example, Heyl, Millikan and Hale felt that the public's ignorance about science was causing a popular distrust of science and an ensuing lack of federal funds for scientific research. So, these three "national scientists" sought to remedy the situation through a plan called "popularization."[7]

Popularization was designed to encourage the accurate and comprehensive presentation of science news in newspapers and magazines in order to increase the public's knowledge and acceptance of science. Indeed, the "national scientists" were convinced that a "proper" public knowledge of science would result in a state of mind that would trust and support the efforts of scientists. Conversely, the "national scientists" believed that persons who distrusted science and did not support scientific efforts were "merely misinformed" about science.[8]

Consequently, in 1919 the "national scientists" made a working arrangement with E. W. Scripps (and others) to supply fresh sources of science news in return for a promise that journalists would strive to provide accurate and comprehensive science news. The arrangement remains today.[9]

On the other side, some members of the press immediately supported the tenets of "popularization" theory. In addition, most science reporters have remained loyal to popularization for the past 50 years.

Even today, most science writers are seriously concerned about what one has called "the shallowness of science knowledge by the public" beyond a superficial awareness of major events such as space flights or national epidemics.[10] "If the public is to make wise and intelligent choices, it needs to know science now and the most accessible way for it to get this

is from . . . the media."[11] The public, it is thought, should realize that future problems facing the United States are a matter of science and technology, and science news should provide enough information to keep the public informed enough to participate meaningfully in public decision making.[12]

Public decisions about science, however, are thought to be feasible only when the public can separate objective facts from subjective pleadings and obtain some sophistication in assimilating science data. "Once we improve the layman's background about science it would clarify popular thinking about the methods of science and lay the ground work for discussion in which rational methods can solve human problems."[13] In short, some science writers believe a public knowledge of science might help solve human problems.[14] The science writer's task, then, is to take an active part in increasing the public's knowledge about science.[15]

Specifically, science writers have described five functions to serve their readers. The first view is that a science reporter should be a transmission agent for science to the public. A science writer in this mode measures his success by how much information the public receives from science reports and how accurate the reports remain, in retrospect. Science reporters are seen as information specialists and should act as a liaison between scientists and the press by providing more accurate information from scientists to the press and then to the public.[16]

A second view is that a science reporter should serve as a translator of science information. This can be distinguished from the first conception in that there is less concern here about the amount of information the reader receives and more concern that, regardless of method, the receiver

learns about the concepts of science. The translator stands between the layman (where knowledge is indefinite) and the scientists (where knowledge is more authoritative).[17] While a scientists advances knowledge, the translator advances progress because "civilization advances at the efficient rate that the thoughts of thinkers can be translated into the thoughts of the masses."[18]

A third view is that a science reporter is a lay educator about science This assumes that the public is scientifically innocent and needs to be equipped with the sensibilities of the science age to cope with science. So, a science specialist is an educator who can provide a more empathic perception than scientists when there are lay misunderstandings or ignorance about science events.[19] Science reporters, essentially, are there to provide instant background about the field and use science events as a cram course about science for the public.[20] A well-known journalism educator, John Hohenberg, asserts that the news media are the public's textbook of science.[21]

The diffusion of innovations view finds that the transmission of science data is only the first step in science reporting. The reporter should, then, take an active role in trying to create a useful awareness of science.[22] Hence, science should be presented in a context of societal interaction by combining entertainment and educational elements within science events to make reporting both interesting and relevant to readers. The emphasis is upon what readers can use from science rather than what science data means. It is presumed, however, that science reporters do the public a disservice when they only write about what the public wants to read about science, in lieu of what they ought to read about science.[23]

The fifth and most sophisticated view of science reporting assumes that science readers are likely to have an acquaintance-with science from high school courses and it is the science reporter's responsibility to draw upon this ready-made cultural milieu in preparing science stories.[24] The science reporter should, first, correct the information gaps which lag behind current progress. Second, he should help develop community of thought about science by reducing the "terrible if invisible gulf of ignorance," not by "cramping and constricting dogma" but "converting the public to unquestionable truths about science."[25] Third, a science writer should acquaint the public with the human side of science by reporting on the "sovereign dignity of knowledge" that motivates the creative scientist and the process by which a scientist unravels complex problems.[26]

Moreover, each of these five views of science reporting are not mutually exclusive; underlying all their differences are both similar operational strategies and value judgments. Most science writers agree that science news should follow what Tannenbaum described as the information chain of news dissemination. Science news is a process of reporting in which research results and eventful data are obtained from scientists. In this process, science information flows from the scientists to the reporter, to the news editor and, finally, to the public.[27] Most science reporters feel the public is knowledge-deprived about science, and the more information that readers receive from specialists, the more enlightened and informed about science they will be.[28] In turn, science information is equated with social progress and an increasing public regard for science.[29]

So, all five forms of science reporting have, at their substructure, a popularization approach and a popularization theory underpinning, which

depends upon reformulating expert facts and viewpoints into laymen's language. Thus, the contractural responsibility of a science writer is information dependability (accuracy, clarity, objectivity and timeliness) and information democratization (maintaining access to sources and efficient delivery systems).

Consequently, as we stated at the outset, the differences between scientists and science reports are seemingly minor in comparison with their philosophical similarities. Indeed, errors in science reporting often seem to be an accident of journalistic praxis rather than a deliberate practice.

However, the symbiotic relationship between scientists and science reporters raises questions about the viability of popularization theory, per se. Clearly, scientists and science reporters alike believe that only conservative information strategies can increase the public's knowledge of science and thereby create an increasing public trust for scientists.

Yet, recent evidence from Tichenor (et. al.) suggests that information strategies in the mass media have helped create a public distrust for science.[29] Moreover, public opinion polls show that the decline in public trust for science has occurred among persons who are well informed about science.[30] In fact, the evidence clearly reveals that increasing public knowledge does not result in an increasing public trust in science. If anything, the relationship seems to work in the opposite direction![31] Hence, current evidence about the relationship between information quality and trustworthiness is inconsistent with the value judgment that underlies popularization theory. This, in turn, opens up the possibility that current mass communication strategies are not a viable solution to help engender a public trust, or a continued growth, for science in society.

Nevertheless, Haaf and Shaw's review of the current impasse between scientists and science reporters reveals that both professions continue to interpret the public's understanding and trust of science as functionally related to accurate and comprehensive science reporting.[32] So, scientists and science reporters seem to be oblivious of the fact that their attempts to reach their own inter-professional goals may be misguided. As a result, scientists and science reporters may well be beating their heads against a wall of their own design. At best, they seem to be defeating the social purposes they desire because their strategies are based on an invalid assumption.

Alternatively, other evidence indicates that trust between scientists and the public is related to the mediation of values.[33] For example, Stephenson (and others) find that a communication of mediated values can establish a public trust in social institutions which, then, paves the way for information diffusion.[34] The creation of public trust, Stephenson finds, comes by comparing scientific values with the public's values. Such comparison is necessary because social trust is developed by a willingness to let values of self-interest compete in a "marketplace" of values and ideas. Conversely, the community of professional values that are not checked by public exposure are mistrusted because they reflect a tendency towards a self-justification of their own interests.

Therefore, to Stephenson an increasing trust for science in society is dependent upon the secularization of science rather than its popularization. Secularization represents the mutual interaction of values and beliefs about science in a full and free public discourse that takes place via newspaper and magazine reporting.[35]

Conversely, if a public discussion of values is missing, then, there is no basis of rapport from which the public can exchange scientific information or interpret scientific "facts." This, in turn, ensures a public distrust of science which is exactly what scientists and science reporters want to avoid.

Moreover, Stephenson claims that it is possible to encourage mass involvement in a secular discourse about scientific values since most persons are able to discuss their values and beliefs about science in their own terms. This, in turn, makes science "communicable" to many persons which generates a subsequent interest about a subject that otherwise seems high handed. This interest is then translated into an interest in scientific information, or popularization.[36]

Therefore, Stephenson suggests that scientists and science reporters interpret their mass communication strategies in terms of popularization and secularization. Secularization, however, should be seen as the first step in scientific communications because it sets the groundwork to accomplish popularization. Finally, the combination of secularization and popularization can accomplish the acknowledged goals among science reporters and scientists which are currently being thwarted by their own lack of self-perception.

NOTES

[1]David Shaw, "Misrepresentation of Scientific Findings by the Media," Los Angeles Times (January 13, 1977): 1.

[2]Daniel S. Greenberg, "Let's Hear It For Science," Columbia Journalism Review 13 (1974): 19-24; Gunther Haaf, "Science Writing in the American Mass Media," Neiman Reports 30 (1976): 11-24.

[3]See: Pierre Auger, "Science and Myth," UNSECO Courier 26 (February, 1973): 4-19; Victor Cohn, "Are We Really Telling The Public About Science," Science 148 (May 7, 1965): 750-53; Michael Crichton, "Heart Transplants and the Press," New Republic 158 (May 25, 1968): 26-28; Amitai Etzioni and Clyde Nunn, "Public Appreciation of Science," Daedalus 103 (1974): 191-206; Haaf, 11-24; Israel Light, "Science Writing: Status and Needs," Journalism Quarterly 37 (1960): 53-60; Robert Oppenheimer, "Communication and Comprehension of Science Information," Science 142 (November 29, 1963): 1145; David Perlman, "Science and The Mass Media," Daedalus 103 (1974): 203-222; Edward Robinson, "Impact of Science Reporting," Journalism Quarterly 40 (1963): 306-314; Earl Ubell, "Science in the Press: Newspapers vs. Magazines," Journalism Quarterly 40 (1963): 293-99.

[4]See: Auger, 4-19; Jesse Burkett, Science Writing and The Mass Media (Houston: Gulf Publishing Co., 1965); Cohn, 750-53; Crichton, 26-28; Etzioni and Nunn, 191-206; Haaf, 11-29; Hiller Krieghbaum, Science and The Mass Media (New York: New York University Press, 1967): Light, 53-60; Oppenheimer, 1145; Perlman, 207-222; Robinson, 306-14; Ubell, 293-99.

[5]Burkett, 17; Krieghbaum 10; Ubell, 293-99.

[6]See: Haaf, 14; Etzioni and Nunn, 191-206; D. J. Callahan, "Science and Ethics: From the Nature of Scientific Discovery," American Scholar 44 (1975): 448-56; Robert Nisbet, "Knowledge Dethroned," New York Times Magazine (November 23, 1975): 34-36; Daniel S. Greenberg, "Scientists Wanted -- Pioneers Needn't Apply: Call AD 2000," Smithsonian 7:7 (1976): 60-64.

[7]For a discussion on popularization see: Ronald Tobey, The American Ideology of National Science (Pittsburgh, The University of Pittsburgh Press, 1971): 1-60.

[8]Ibid., 1-60.

[9]I. I. Rabi, Science: The Center of Culture (New York: World Publishing Co., 1970); Jean Rostand, "Popularization of Science," Science 131 (May 20, 1960): 1491; Auger, 4-19; Crichton, 26-28.

[10]Ubell, 246.

[11]Kreighbaum, 5.

[12]Ibid., 4-12.

[13]Ibid., 10-11.

[14]Ibid. 16.

[15]Ibid., 16, 51-55;. Krieghbaum is the most explicit, but Burkett, Light and Ubell all agree substantially with this position.

[16]Ubell, 292-99; Perlman, 207-222.

[17]Light, 53-60.

[18]Ibid, 56.

[19]Cohn, 750-53.

[20]Krieghbaum, 28-29.

[21]John Hohenberg, The Professional Journalist (New York: Henry Holt and Company, 1960): 366.

[22]Krieghbaum, 51-55.

[23]Ibid., 110-132.

[24]Burkett, 11.

[25]Rostand, 1491.

[26]Burkett, 37-39.

[27]Percy Tannenbaum, "Communication of Science Information," Science 140 (May 10, 1963): 581-585.

[28]Krieghbaum, 16-28, 51-59.

[29]Phillip J. Tichenor, Clarice Olien, Annette Harris, and George Donohue, "Mass Communication Systems and Communication Accuracy in Science News Reporting," Journalism Quarterly 47(1970): 673-83; George Donohue, Clarice Olien and Phillip J. Tichenor, "Mass Media Functions: Knowledge and Social Controls," Journalism Quarterly 80:4 (1973) 652-59.

[30]Haaf, 14-19, Nisbet, 34-36.

[31]Haaf, 14-19, Etzioni and Nunn, 191-206, Nisbet, 34-36, Greenberg, "Scientists Wanted," 6064; Caryll Tucker, "The Back Door," Saturday Review (June 25, 1977): 52; Frank Trippett, "Science: No Longer a Sacred Cow," Time 109 (March 7, 1977): 72-73.

[32]Shaw, 1; Haaf, 14-19.

[33]See: Joseph Ascroft, "The Diffusion Innovation Model," In Mass Communications in Nutrition Improvement, (New York: United Nations Protein Calorie Advisory Group, 1976): 1-9; William Stephenson, Lake Ozark Symposium on Science News (Columbia, Mo: National Science Foundation Report, 1976); William Stephenson, "Secularization of Science News," (Columbia, Mo., unpublished manuscript, 1977).

[34]Stephenson, "Secularization of Science News," 1-18; James Carey, "A Cultural Approach to Communication," Communication 2 (1975): 1-22; Warren G. Bennis and Philip E. Slater, The Temporary Society, (New York: Harper and Row, 1968): 3-10; Trippett, 73.

[35]Stephenson, "Secularization of Science News," 1-18; Stephenson, Lake Ozark Symposia, 24-27, 143-148.

[36]Stephenson, Lake Ozark Symposia, 24-27, 143-48; Stephenson, "Secularization of Science News," 1-18.

BIBLIOGRAPHY

Ascroft, Joseph. "The Diffusion Innovation Model." In Mass Communication in Nutrition Improvement. New York: United Nations Protein-Calorie Advisory Group, 1976.

Auger, Pierre. "Science and Myth." UNESCO Courier 26 (February 1973): 4-19.

Bennis, Warren G., and Slater, Philip E. The Temporary Society. New York: Harper and Row, 1968.

Burkett, Jesse. Science Writing for the Mass Media. Houston: Gulf Publishing Company, 1965.

Callahan, D. J. "Science and Ethics: From the Nature of Scientific Discovery." American Scholar 44 (1975): 448-456.

Carey, James W. "A Cultural Approach to Communication." Communication 2 (1975): 1-22

Carter, Paul A. "Science and the Common Man." American Scholar 45 (1976): 779-785.

Cohn, Victor. "Are We Really Telling the Public about Science?" Science 148 (May 7, 1965): 750-753.

Crichton, Michael J. "Heart Transplants and the Press." New Republic 158 (May 25, 1968): 26-28.

Donohue, G.; Olien, C.; and Tichenor, P. J. "Mass Media Functions: Knowledge and Social Control." Journalism Quarterly 50:4 (1973): 652-659.

Etzioni, Amitai, and Nunn, Clyde. "Public Appreciation of Science." Daedalus 103 (1974): 191-206

Funkhouser, G. Ray, and Maccoby, Nathan. "Communicating Scientific Information to a Lay Audience." Journal of Communication 21 (1971): 58-71.

Funkhouser, G. Ray, and Maccoby, Nathan. "Tailoring Science Writing to the General Public." Journalism Quarterly 50:2 (1973): 220-226.

Greenberg, Daniel S. "Let's Hear it for Science." Columbia Journalism Review 13 (1974): 19-24

_____. "Scientists Wanted--Pioneers Needn't Apply: Call AD 2000." Smithsonian 7:7 (1976): 60-64

Haaf, Gunther. "Science Writing in the American Mass Media." Neiman Reports 30 (1976): 11-24.

Hohenberg, John. The Professional Journalist. New York: Henry Holt and Company, 1960.

Krieghbaum, Hiller. Science and the Mass Media. New York: New York University Press, 1967.

Light, Israel. "Science Writing: Status and Needs." Journalism Quarterly 37 (1960): 53-60.

Merton, Robert. "Behavior Patterns of Science." American Scholar 38 (1969): 197-226.

Nisbet, Robert. "Knowledge Dethroned." New York Times Magazine (November 23, 1975): 34-36.

Oppenheimer, Robert. "Communication and Comprehension of Science Information." Science 142 (November 29, 1963): 1145.

Perlman, David. "Science and the Mass Media." Daedalus 103 (1974): 207-222.

Rabi, I. I. Science: The Center of Culture. New York: World Publishing Company, 1970.

Robinson, Edward J. "Impact of Science Reporting." Journalism Quarterly 40 (1963): 306-314.

Rostand, Jean. "Popularization of Science." Science 131 (May 20, 1960): 1491.

Shaw, David, "Misrepresentation of Scientific Findings by the Media," Los Angeles Times (January 13, 1977): 1.

Stephenson, William. Lake Ozark Symposium on Science News. Columbia, Missouri: National Science Foundation Report, 1976.

_____. "Secularization of Science News." Columbia, Missouri: University of Missouri School of Journalism, unpublished manuscript, 1977.

Tannenbaum, Percy H. "Communication of Science Information." Science 140 (May 10, 1963): 579-583.

Tichenor, Phillip J.; Olien, Clarice; Harrison, Annette; and Donohue, George. "Mass Communications Systems and Communication Accuracy in Science News Reporting." Journalism Quarterly 47 (1970): 673-683.

Tobey, Ronald. The American Ideology of National Science. Pittsburgh: The University of Pittsburgh Press, 1971.

Trippett, Frank. "Science: No Longer a Sacred Cow." Time 109 (March 7, 1977): 72-73.

Tucker, Carll. "The Back Door." Saturday Review (June 25, 1977): 52.

Ubell, Earl. "Science in the Press: Newspapers vs. Magazines." Journalism Quarterly 40 (1963): 293-299.